

RECORD OF DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
WILDLIFE DAMAGE MANAGEMENT
IN THE
RICHFIELD, UTAH ADC DISTRICT

INTRODUCTION and PROPOSED ACTION:

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Animal Damage Control (ADC) program received requests to conduct wildlife damage management to protect livestock, wildlife, and public health and safety in the Richfield, Utah ADC District in southern Utah. To produce this environmental assessment (EA), ADC worked cooperatively with the Manti-LaSal, Fishlake and Dixie National Forests, and the Richfield, Moab and Cedar City BLM Districts, the Utah Division of Wildlife Resources (UDWR) and the Utah Department of Agriculture (UDA). This decision and Finding of No Significant Impact (FONSI) are based on the analysis in this EA. The purpose of the proposed action is to alleviate damage caused by predators in the Richfield ADC District. The needs for the program, as identified in the EA, are that livestock, wildlife and at times, public health or safety may be adversely affected by predators. Livestock producers (cooperators) in the Richfield ADC District depend on ADC to reduce the number of livestock killed, injured or harassed by predators, and to help maintain the economic viability of their operations and those of some of the local communities.

The Richfield ADC District has agreements to conduct wildlife damage management on about 18.4 million acres, which is 60% of the area, but only conducts wildlife damage management on about 7 million acres or 23% of the area annually. Cattle and sheep are permitted to graze on Federal lands under the jurisdiction of the Forest Service and BLM, and on private lands of livestock producers that participate in the cooperative ADC program. On Federally managed lands, livestock grazing conforms to the respective National Forest Land and Resource Management Plan (LRMP), and the respective BLM District Resource Management Plan (RMP) or Management Framework Plan (MFP).

ADC is the Federal agency charged by law to reduce the damage caused by predatory animals preying on livestock or wildlife, and for resolving public health or safety concerns on Forest Service, BLM and other lands. ADC cooperates with the Forest Service, BLM, UDWR and UDA to minimize animal damage. The UDWR has the responsibility to manage all protected and classified wildlife in Utah, except Federally listed threatened and endangered (T&E) species. The UDA has the responsibility to manage species classified as predatory animals. Livestock producers and wildlife management agencies have requested that ADC conduct predator damage management to reduce livestock and wildlife losses in the Richfield ADC District. ADC's authority is derived from the Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c), the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988, and in Utah, by the Utah Agricultural and Wildlife Damage Prevention Act.

Memoranda of Understanding (MOUs) signed between APHIS-ADC and the Forest Service, BLM, UDWR and UDA clearly outline the responsibility, technical expertise and coordination between agencies. These MOUs provide guidance for compliance with the National Environmental Policy Act (NEPA) with the Forest Service and BLM and the basis for the interdisciplinary process used to develop the EA. A Multi-agency Team with representatives and advisors from each of the cooperating agencies convened to assist in the assessment of wildlife damage management in the Richfield ADC District. The Forest Service and BLM cooperated with ADC to determine whether the proposed action on Forest Service or BLM lands is in compliance with relevant laws, regulations, policies, orders, and procedures. All wildlife damage management will be conducted in a manner consistent with the Endangered Species Act of 1973 and the Section 7 Consultation with the U.S. Fish and Wildlife Service.

This EA analyzes the potential environmental and social effects for preventing or resolving predator damage to livestock in the Richfield ADC District, and an objective comparison of six alternatives addressing wildlife damage management. Comments from scoping letters and comments from the draft EA were reviewed for substantive issues and alternatives which were considered in developing this decision. The analysis and supporting documentation are available for review at the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Animal Damage Control, P.O. Box 26976, Salt Lake City, Utah 84126-0976.

Decision and Rationale

I have carefully reviewed the EA and the input from the public involvement process. I believe that the issues identified are best addressed by selecting Alternative 3 (the preferred Alternative in the EA) and applying the associated mitigation and monitoring measures discussed in Chapter 3 of the EA. I have also decided to adopt the Draft Richfield ADC District EA as the final. Most corrections identified from public comments were editorial in nature and did not change the analysis. Some public comments regarding the EA indicated areas that required clarification or inclusion. These are:

- A. The potential for ADC's take of coyotes, in addition to other forms of take, to depress coyote populations to the point where prey populations such as rabbits and mice (rodents) would increase and cause damage.

The relationship between predators, and rabbit and rodent populations have been summarized in USDI (1979). Rabbit and rodent populations normally fluctuate substantially in several-year cycles with two hypotheses attempting to explain these cyclic fluctuations: 1) rodent and rabbit populations are self-regulated through behavior, changes in reproductive capacity, or genetic changes (Chitty 1967, Myers and Kregs 1983), and 2) populations are regulated by environmental factors such as food and predation (Pitelka 1957, Fuller 1969). Keith (1974) concluded that: 1) during cyclic declines in rodent and rabbit populations, predation has a depressive effect and the rodent population may decline further and be held for some time at relatively low densities, 2) rodent and rabbit populations may escape these low points when predator populations decline in response to low prey abundance, and 3) since rabbit and rodent populations increase at a faster rate than predator populations, factors other than predation must initiate the decline in prey populations.

Wagner and Stoddart (1972) and Clark (1972) independently studied the relationship between coyote populations and black-tailed jackrabbit (*Lepus californicus*) populations in northern Utah and southern Idaho. Both concluded that coyote populations seemed to respond to an abundance of jackrabbits. However, when a broad range of prey species are available, coyotes will generally feed on all species available, therefore coyote populations may not vary with changes in the availability of a single prey species (Knowlton 1964, Clark 1972). Robinson (1956) contended that rational control of coyotes will have little effect on rodent numbers. Therefore, predators generally do not "control" rodent populations but it is more likely that prey abundance controls predator populations (Keith 1974, Clark 1972, Wagner and Stoddart 1972).

Analyses were conducted on the number of predators killed by ADC on the Richfield ADC District to determine the potential impacts to the predator population and other species in relationship to the estimated population. ADC only killed between 3.2 and 5.1 % of the estimated coyote population in the District, far below natural mortality figures reported from studies. The ADC kill and the "Total Take" of predators are such that rodent populations would not increase in response to the kill of predators.

- B. The indiscriminate killing of coyotes often disturbs stable coyote populations, thus encouraging opportunist animals far more likely to kill livestock and producing more young.

Mortality in coyote populations can range from 19-100% with 40-60% mortality most common. Several studies of coyote survival rates, which include calculations based on the age distribution of coyote populations, show typical annual survival rates of only 45 to 65% for the adult coyotes. High mortality rates have also been shown in four telemetry studies involving 437 coyotes that were older than 5 months of age; 47% of the marked animals are known to have died. Mortality rates even among "unexploited" coyote populations were reported to be between 38-56%. In

studies where reported coyote mortality was investigated, only 14 of 326 recorded mortalities were due to ADC activities.

Dispersal of "surplus" young coyotes is the main factor that keeps coyote populations distributed throughout their habitat. Such dispersal of subdominant animals removes surplus animals from higher density areas and repopulates areas where artificial reductions have occurred. Two studies (Connolly et al. 1976, Gese and Grothe 1995) investigated the predatory behavior and social hierarchy of coyotes, and determined that the more dominant (alpha) animals were the ones that initiated and killed most of the prey items. Connolly et al. (1976) concluded that the proclivity of individuals that attacked seemed related to their age and relationship with conspecifics. The coyotes that attacked sheep most frequently were 2-year-old males and females paired with these males. Gese and Grothe (1995) concluded from observing wild coyotes that the dominant pair was involved in vast majority of predation attempts. The alpha male was the main aggressor in all successful kills, even when other pack members were present. Thus it appears the above concern is unfounded because removal of local territorial (dominant) coyotes actually removes the individuals that are most likely to kill livestock and generally results in the immigration of subdominant coyotes that are less likely to kill livestock.

Coyotes in areas of lower population densities, may reproduce at an earlier age and have more off spring per litter, however, these same populations generally sustain high mortality rates of adults and offspring. Therefore, the overall population of the area does not change. The number of breeding coyotes does not substantially increase without exploitation and individual coyote territories produce one litter per year independent of the population being exploited or unexploited. Connolly and Longhurst (1975) demonstrated coyote populations in exploited and unexploited populations do not increase at significantly different rates and that an area will only support a population to its carrying capacity.

C. One comment was received which stated that some ranchers vastly over-report predator losses.

Livestock loss information used for this EA was compiled from the National Agricultural Statistics Service (NASS) and the ADC Management Information System (MIS). The NASS randomly sampled livestock producers (Alaska was not included) to provide the data for the estimates. Survey procedures ensured that all livestock producers, despite size, had a chance to be included in the survey. Large producers were sampled more heavily than small producers. Data were collected from about 77,000 cattle producers and 75,000 sheep and goat producers by mail, telephone, and face-to-face interviews. An additional non-probability survey for sheep and goat producers was also conducted in a few western states. Since all livestock producers are not included in the sample, survey estimates are subject to sampling variability. Errors are minimized, however, through rigid quality control in the data collection process and through a careful review of all reported data for consistency and reasonableness. ADC collected MIS loss data by interviewing livestock producers where ADC conducted wildlife damage management.

Pearson (1986) reported on several studies that indicated little or no bias occurred in ranchers reporting loss, and Shelton and Klindt (1974) found that some ranchers underestimated their losses due to some husbandry practices. Schaefer et al. (1981) investigated sheep predation and determined that: 1) producers correctly assessed the cause of livestock death more than 94% of the time, and 2) the results of two types of loss surveys yielded similar results.

D. Commentors believe the program is not cost effective, that ADC wildlife damage management has no effect on livestock lost, and the EA did not demonstrate a need on BLM lands.

ADC addressed these issues using an analysis of studies which assessed predation when wildlife damage management was present and when it was not as sited in the ADC Programmatic EIS, Chapter 4. When wildlife damage management was absent, livestock producers sustained greater loss of livestock from predators. ADC is also charged by law to protect agricultural resources by the Animal Damage Control Act of 1931 (46 Stat. 1486; 7 U.S.C. 426-426c), the Rural Development, Agriculture and Related Agencies Appropriations Act of 1988, and in Utah, by the Utah Agricultural and Wildlife Damage Prevention Act. In order to fulfill these directives, wildlife damage management is conducted to prevent or minimize damage and protect resources while complying with strict measures to ensure public safety as well as the protection of domestic animals, and nontarget and T&E species. Therefore, wildlife damage management is not

based on the principle of punishing offending animals but rather as a means of reducing damage, predicting future damage, and is conducted using the ADC decision model described in the programmatic EIS (USDA 1994, pp. 2-23 to 2-36). The imminent threat of damage or loss of resources is often sufficient for individual actions to be initiated. The need for action is derived from the specific threats to the resources and the available methods for responding to those threats (see section VI.) The number of coyotes removed by ADC is in response to predation problems experienced by livestock producers and others or the threat of predation to resources. Knowlton (1989) suggested that increased abundance of natural prey cause a numerical increase in the coyote population which resulted in greater predation on sheep. When natural densities of prey declined, but while coyote densities were still high, predation on sheep escalated sharply.

E. One commentor stated that the EA failed to estimate predator populations for each BLM District.

The EA estimates predator populations for the entire Richfield ADC District to better assess impacts across administrative boundaries. Coyotes and other predators evaluated in the EA are not bound by human-made political boundaries, such as BLM Districts, but are dependent on an adequate prey base and intraspecific competition and density. ADC used coyote research studies that determined coyote population densities in Utah and other areas to model coyote population estimates for the District; various land uses and types were considered in the population model. Variations in coyote densities inhabiting different habitats and land classes was observed and reported by Gese et al. (1988). By estimating predator populations for the District, cumulative impacts can better be assessed.

F. Two issues were raised by the Dixie National Forest in comments on the Draft EA. These were: 1) providing the opportunity for sportsman to harvest depredating bears, and 2) requiring non-lethal control prior to lethal control on the Dixie National Forest.

The authority for ADC to conduct bear damage management comes from the Utah Division of Wildlife Resources (UDWR), the agency responsible for managing all protected and classified wildlife in Utah, except Federally listed threatened and endangered species. Should the UDWR want to address bear damage management through sportsmen, then no ADC actions would take place. ADC will continue to coordinate bear damage management with both the Forest Service and UDWR, as described on page 1-11 of the EA (Authority and Compliance-UDWR).

The decision, supported by analysis in the EA, is to implement an integrated wildlife damage management program on all lands within the District. ADC is not a regulatory agency but is a cooperative, service program, and as such ADC cannot require non-lethal methods be used prior to the use of lethal methods. If the Dixie National Forest, under its grazing program, requires the permittee to use non-lethal predator control as a condition of the grazing permit, this will be a Forest action and beyond the scope of the EA. As recognized in the National Memorandum of Understanding between the Forest Service and APHIS-ADC, ADC has the authority and expertise to conduct animal damage management deemed appropriate. ADC can, however, provide the Forest Service non-lethal alternatives to aid in the development of standards. The evaluation of the use of non-lethal methods, as a condition of the grazing permit, would be the responsibility of the Forest Service.

Consistency

Wildlife damage management will be conducted on National Forest Service and BLM lands consistent with the MOUs between the APHIS-ADC, the Forest Service and BLM, the EA, and Forest Service and BLM policies. Any Annual Work Plan developed for wildlife damage management, pursuant to this decision, will be consistent with the direction provided in the LRMPs for the Manti-LaSal, Fishlake and Dixie National Forests, and with the RMP or MFPs for the Richfield, Moab and Cedar City BLM Districts. On Forest Service and BLM managed lands, public safety and environmental concerns are adequately mitigated through jointly developing Annual Work Plans with the Forest Service or BLM and ADC. The Forest Service and BLM may, at times, restrict wildlife damage management that threatens public safety or resource values; modifications may also be made in areas where wildlife damage management is permitted. All wildlife damage management will be conducted in a manner consistent with the Endangered Species Act of 1973 and the Section 7 Consultation with the U.S. Fish and Wildlife Service.

The analyses in the EA demonstrate that Alternative 3 provides ADC the best opportunity to meet the stated objectives with the lowest impacts on nontarget species and reduced the effects of predation on designated wildlife and T&E species. Alternative 3 best: 1) addresses the issues identified in the EA and provides the environmental safeguards for public safety, 2) balances the economic effects of livestock losses to Forest Service and BLM permittees and private land owners, and the concerns for the other multiple use values of the Forest Service and BLM and 3) allows ADC to meet its obligations to the UDWR, UDA and cooperating counties and individuals within the Richfield ADC District. As a part of this decision, the Utah ADC program will provide all cooperators and cooperating Federal, State and local agencies with information on nonlethal management techniques proven to be effective for reducing predation within one year of the decision. New cooperators or cooperating agencies will be provided this information within three weeks of signing a cooperative agreement, and new information on proven nonlethal management techniques will be provided to all cooperators and cooperating agencies within one year of the information becoming available.

Monitoring

The Utah ADC program, in consultation with the UDWR, will compare the target and nontarget animals killed in the Richfield ADC District and statewide with the total animals taken in the State to determine if the total take is within allowable harvest levels of the appropriate State agency. Utah ADC will also monitor its progress toward the objectives found in Chapter 1 of the EA, including Objective A-7 to monitor the implementation of producer nonlethal techniques. Existing nonlethal actions being employed by cooperators will be tracked using the ADC MIS database once this capability is developed.

Public Involvement

The public involvement utilized in this analysis was extensive. More than 1,100 local and national organizations and individuals were contacted to solicit participation for the analysis. In addition, a news release and formal notices were published in four statewide and regional newspapers before analysis. Seventy-three responses were received from organizations and individuals as part of this initial process; these responses were reviewed for substantive issues and alternatives which were analyzed in the EA.

More than 150 Draft EAs were mailed to these organizations, individuals, public agencies and local American Indian Tribes for review and comment. Forty-five individuals, organizations or agencies provided written comments on the Draft EA. These comments were considered in the development of this decision.

The documentation on the public involvement effort, including the written responses, is available for public review. They can be found in the administrative file in ADC State Directors Office in Salt Lake City, Utah.

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

1. Viability of target and non-target wildlife, including the potential to jeopardize T&E Species
2. The use of ADC methods
3. Appropriate wildlife damage management methods for public and private lands
4. Public health and safety.
5. Economics.

Alternatives That Were Fully Evaluated

The following Alternatives were developed by the Multi-agency Team to respond to the issues. Two additional alternatives were considered but not analyzed in detail. A detailed discussion of the effects of the Alternatives on objectives and issues is described in the EA; below is a summary of the Alternatives, objectives and issues.

Alternative 1. No Action - Continuation of the current Richfield ADC program. The No Action Alternative was analyzed and used as a baseline for comparing the effects of the other Alternatives as required by 40 CFR 1502.14(d). This alternative consists of using preventive and corrective lethal damage management for resolving coyote and red fox damage and corrective lethal damage management on a case-by-case basis for black bear and mountain lion damage. Alternative 1 would not allow ADC to fully meet the objectives to reduce predation on calves, to respond to all requests and to assist the UDWR in meeting their wildlife management objectives. The analysis of impacts that Alternative 1 would have was low for the target species, predator/prey relationships, nontarget and T&E species.

Alternative 2. No Federal ADC Program. This Alternative would terminate the Federal wildlife damage management program in the Richfield ADC District. Alternative 2 was not selected because ADC is charged by law and reaffirmed by a recent court decision to reduce damage caused by wildlife, and this alternative would not allow ADC to meet its statutory responsibility for providing assistance or to minimize wildlife damage. Alternative 2 would not allow ADC to meet 10 of the 11 objectives for the program. Only the nontarget species objective would be met. By analysis, the level of anticipated impacts of Alternative 2 is higher than for Alternatives 1 or 3, and the same as Alternative 6. Alternative 2 violates the MOU between APHIS-ADC where the Forest Service and BLM mutually recognize that management of wildlife damage on Forest Service and BLM managed lands is important and may involve the management of localized predator populations to achieve land and resource management objectives.

Alternative 3. Integrate Wildlife Damage Management for Multiple Resources was selected because it best allows ADC to meet the objectives described in the EA and is most consistent with the Forest Service LRMPs and BLM RMPs or MFPs. Alternative 3 conforms to the MOUs between ADC, the Forest Service and BLM that mutually recognize that the management of wildlife damage on Forest Service and BLM lands is important and may involve the management of local predator populations to achieve land and resource management objectives. Alternative 3 would allow ADC to fully meet 10 of the 11 objectives for the program and to partially meet the objective of reducing predation on calves. Analysis of Alternative 3 showed a low level of impacts for the target species, predator/prey relationships, nontarget and T&E species.

Alternative 4. Nonlethal Control Required Prior to Lethal Control was not selected because no standard exists to determine diligence in applying nonlethal methods nor are there any standards to determine how many nonlethal applications are necessary before initiation of lethal controls. ADC is charged by law and this was reaffirmed in a recent court decision to minimize damage caused by wildlife. Consideration of wildlife needs is not included with the non-lethal methods currently available nor could ADC base control strategies on the needs of designated wildlife. Alternative 4 would only allow ADC to meet four of the 11 objectives described in the EA. Alternative 4 would not allow ADC to: respond to all requests, reduce predation to lambs and calves, assist the UDWR in meeting wildlife management objectives, and address public safety requests. Analysis of Alternative 4 showed its impacts are higher than those of Alternatives 1 or 3.

Alternative 5. Corrective Control Only would not allow for any preventive coyote damage management and management could only be implemented after the onset of losses by coyotes. Black bear and mountain lion damage would be addressed on a corrective basis which is the same procedure as described under the proposed action. Alternative 5 was not selected because it: 1) is often difficult to remove offending coyotes quickly enough to prevent further losses once predation has begun, 2) does not allow ADC to meet the objectives described in the EA, and 3) does not allow ADC to meet its statutory directives. Under Alternative 5, ADC could conduct wildlife damage management only after verification of livestock losses. ADC is charged by law and this was reaffirmed by a recent court decision to minimize damage caused by wildlife. Alternative 5 would delay management of problem wildlife while verification of losses occurred and management actions could be implemented. Alternative 5 would not allow ADC to meet eight of

the 11 objectives. These objectives are to reduce predation to lambs, sheep and calves; assist the UDWR in meeting wildlife management objectives; and to reduce threats to public health and safety. Objectives concerning responding to requests, providing information on nonlethal wildlife damage management and monitoring would only be partially met, and the nontarget species objective would be met. Analysis of Alternative 5 showed its impacts to be higher than Alternatives 1 or 3.

Alternative 6. Technical Assistance Only. Under Alternative 6, ADC would be restricted to providing technical assistance, and all operational wildlife damage management in the Richfield ADC District (Alternative 1) would be eliminated. Alternative 6 was not selected because it was inconsistent with Forest Service and BLM policy, and it is likely the Forest Service and BLM could not meet their management guidelines. Alternative 6 would not allow ADC to meet 10 of the 11 objectives. These objectives are to respond to requests; reduce predation to lambs, sheep and calves; assist UDWR in meeting wildlife objectives; and to respond to public safety requests. The objectives to provide information on nonlethal damage management and monitoring would only be partially met; the nontarget species objective would be met. Analysis of Alternative 6 showed its impacts to be higher than Alternatives 1 or 3.

The alternatives considered but not analyzed in detail are the following:

Compensation for Wildlife Damage Losses Alternative. The Compensation alternative would direct all Richfield ADC District program efforts and resources to the verification of livestock and poultry losses from predators and providing monetary compensation to the producers. ADC services would not include any direct damage management nor would technical assistance or nonlethal methods be provided. This alternative was eliminated from detailed analysis in ADC's Final EIS (USDA 1994) because of many disadvantages such as: (1) the alternative would require large expenditures of money and a large work force to investigate and validate all losses and to determine and administer appropriate compensation, (2) compensation would likely be below full market value and many losses could not be verified, (3) compensation would give little incentive to livestock owners to limit predation through improved husbandry practices and other management strategies, (4) not all ranchers would rely completely on compensation and lethal control of predators would most likely continue as permitted by State law, and (5) Congress has not appropriated funds to compensate for predation or other wildlife damage to agricultural products.

Eradication and Suppression Alternative. The eradication and suppression alternative would direct all Richfield ADC District program efforts toward planned, total elimination of native predatory species. Eradication of unprotected predators, such as coyotes, is legal in Utah but is not supported by ADC, the UDWR or UDA. This alternative was not considered in detail because: (1) ADC is opposed to the eradication of any native wildlife species, (2) UDWR and UDA oppose the eradication of any native Utah wildlife species, (3) the eradication of a native species or local population would be extremely difficult, if not impossible, to accomplish, (4) would be cost prohibitive, and (5) eradication is not acceptable to most people.

Decision

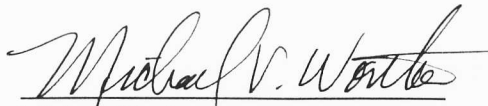
I have carefully reviewed the EA and the public input resulting from scoping and Draft EA review process. I believe the issues identified in the EA are best addressed by selecting Alternative 3. Alternative 3 provides the best range of damage management methods considered practical and effective to accomplish ADC's Congressionally directed activities. While Alternative 3 does not require non-lethal methods to be used by producers, ADC will continue to strongly encourage the use of practical and effective non-lethal methods by livestock producers. By this decision, I am directing the Richfield ADC District to implement Alternative 3, Objectives A-5 and A-7 and pertinent mitigation measures as discussed in the Draft EA.

Finding of No Significant Impact

The EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment because of this proposed action and that these actions do not constitute a major Federal action. I agree with this conclusion and therefore determine that an Environmental Impact Statement will not be prepared. This

determination is based on the following factors:

1. Predator damage management, as conducted in the Richfield ADC District, is not regional or national in scope.
2. Based on the analysis documented in the EA, the impacts of the predator damage management program will not affect the human environment.
3. The proposed action will not have an impact on unique characteristics of the areas such as historical or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecological critical areas.
4. The proposed action will not significantly affect public health and safety. No accidents associated with ADC predator damage management are known to have occurred in southern Utah.
5. The effects on the quality of the human environment are not highly controversial. Although there is opposition to predator damage management, this action is not controversial in relation to size, nature or effects.
6. Mitigation measures adopted as part of the proposed action minimize risks to the public and prevent adverse effects on the human environment and reduce uncertainty and risks.
7. The proposed action does not establish a precedent for future actions. This action would not set a precedence for future predator damage management that may be implemented or planned within the area.
8. The number of animals taken (both target and non-target) by ADC annually is small in comparison to the total population. Adverse effects on wildlife or wildlife habitats would be minimal.
9. No significant cumulative effects were identified by this assessment or other actions implemented or planned within the area.
10. Predator damage management would not affect cultural or historic resources. The proposed action does not effect districts, sites, highways, structures or objects listed in or eligible for listing in the National Register of Historic Places nor will cause a loss or destruction of significant scientific, cultural, or historical resources, including interference with American Indian traditional uses or Sacred sites.
11. An evaluation of the proposed action and its effects on T&E species determined that no significant adverse effects would be created for these species. The proposed action will fully comply with the Endangered Species Act of 1973, as amended. In the EA, the concern for viability of T&E species addresses not only the legal mandate to preclude jeopardy, but also recognizes the opportunity to protect T&E species from direct predation. Both concerns were analyzed in the EA. Consultation with the U.S. Fish and Wildlife Service has taken place and their input was used as part of the mitigation development process.
12. This action would be in compliance with Federal, State and local laws or requirements for predator damage management and environmental protection.


Michael Worthen
Regional Director, USDA-APHIS-ADC

FEB 25 1996
Date

Additional Literature Cited

- Chitty, D. 1967. The natural selection of self-regulatory behavior in animal populations. *Proc. Ecol. Soc. Australia*. 2:51-78.
- Connolly, G. E., R. M. Timm, W. E. Howard and W. M. Longhurst. 1976. Sheep killing behavior of captive coyotes. *J. Wildl. Manage.* 40:400-407.
- Fuller, W.A. 1969. Changes in numbers of three species of small rodent near Great Slave Lake N.W.T. Canada, 1964-1967 and their significance for general population theory. *Ann. Zool. Fennici*. 6:113-144
- Gese, E. M. and S. Grothe. 1995. Analysis of coyote predation on deer and elk during winter in Yellowstone National Park, Wyoming. *Am. Midl. Nat.* 133:36-43.
- Keith, L. B. 1974. Some features of population dynamics in mammals. *Int. Cong. Game Biol.* 11:17-59.
- Knowlton, F. F. 1989. Predator biology and livestock depredation management. *Amer. Soc. Anim. Sci.* 40:504-509.
- Myers, J. and C.J. Krebs. 1983. Genetic, behavioral, and reproductive attributes of dispersing field voles *Microtus pennsylvanicus* and *Microtus ochrogaster*. *Ecol. Monogr.* 41:53-78.
- Pearson, E. W. 1986. A literature review of livestock losses to predators in western U.S. Denver Wildlife Research Center, Bldg. 16, Denver Federal Center, Denver, Colorado 80225. Unpubl. Rpt. 20pp.
- Pitelka, F.A. 1957. Some characteristics of microtine cycles in the Arctic. *Oregon State College, Biol. Colloquium Proc.* 18:73-88.
- Robinson, W. B. 1956. Does the coyote control rodents or doesn't he? *Amer. Cattle Prod.* 38:8-12.
- Schaefer, J. M., R. D. Andrews and J. J. Dinsmore. 1981. An assessment of coyote and dog predation on sheep in southern Iowa. *J. Wildl. Manage.* 45:883-893.
- Shelton, M. and J. Klint. 1974. Interrelationship of coyote density and certain livestock and game species in Texas. *Texas A&M Univ., Agricul. Exp. Stn. Rpt. No. MP-1148*. 12pp.
- Wagner, F. H. and L.C. Stoddart. 1972. Influence of coyote predation on black-tailed jackrabbit populations in Utah. *J. Wildl. Manage.* 36:329-342.